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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/723,254
Filing Date: November 26, 2003
Appellant(s): YONCE ET AL.

J. Kevin Parker
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/21/09 and the corrected Section V. and Section VII. filed 3/30/09, appealing from the Office action mailed 7/15/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief generally is correct.

In claim 1, the Appellant discloses the first sensing channel as a ventricular sensing channel (41, 43A, 43B) and points to discussion in the specification (page 10, line 18-25, and page 11, lines 1-15) related to figure 2A where the electrogram signals are recorded with respect to time.

In claim 11, the Appellant discloses the first sensing channel as a ventricular sensing channel (41, 43A, 43B) and points to discussion in the specification (page 12, line 1-20) related to figure 3A where evoked response electrogram signals, and not ventricular electrogram signal, is recorded with respect to heart rate.

As related to the first sensing channel, according to the specification, one or more sensing channels may be recorded, and there is not just one sensing channel, but rather four sensing channels: an atrial channel (31, 33A, 33B), a first ventricular channel (41, 43A, 43B), a second ventricular channel (51, 53A, 53B), and an evoked response channel (21, 23, 70) (page 6, lines 3-6; page 8, lines 4-22).

The discussion of claim 1 and 11 is misleading.

As related to the recording, according to the specification, any of the channels can be recorded with respect to time or with respect to heart rate (page 6, line 3-6).

Finally, the Examiner is unable to find in the instant specification, the discussion of the Q-T interval at the bottom page 4 in the corrected Section V. of the Appeal Brief filed 3/30/09.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,748,274	LEVINE et al.	6-2004
5,830,150	PALMER et al.	11-1998
5,431,691	SNELL et al.	7-1995

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

I. Rejection of claims 1, 4, 5, 7, 9-11 and 14-16 under 35 U.S.C. 102(e) as being anticipated by Levine et al. (U.S. Patent No. 6,748,274)

Claims 1, 4, 5, 7, 9-11 and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Levine et al. (U.S. Patent No. 6,748,274).

Levine et al. disclose a method and apparatus for displaying information comprising an implantable device (100) the implantable device comprising a first sensing channel (82 or 84) and a controller (60). The method and apparatus further comprise an external programmer (102) including a display (video display (214) and printer (236)) to show graphical data (waveform and histogram). The electrocardiogram data is compiled with respect to heart rate in specific ranges and over a specified long-term period of time. Events are time stamped/ marked (abstract; figures 2, 3, 5, 8-11B; column 5, lines 33-45; column 7, lines 7-16; column 8, lines 29-33 and 48-52; column 9, lines 1-12; column 10, lines 60-62; column 12, lines 53-54;

column 13, lines 59-61; column 14, lines 16-18, 31-34; column 15, lines 5-12; column 15, line 67 – column 16, line 3; column 16, lines 17-19).

As to claims 1, 9 and 11, Levine et al. incorporate by reference Snell et al. (U.S. Patent No. 5,431,691) (column 2, lines 18-28) who disclose recording data continuously for discrete time intervals and determining the average for each of the discrete time intervals (column 17, lines 60-66; column 22, lines 5-16). Levine et al. disclose displaying graphical information such as an electrogram from a collection of data (column 15, lines 53-56; column 16, lines 48-51), disclose gathering heart rate information based on ranges of heart rate (column 14, lines 31-34) and disclose the data being recorded over a relatively long period of time (column 14, lines 60-63), hence Levine et al. and Snell et al. are read to teach computing the representative electrogram for each discrete time interval as a time average of electrograms recorded during the discrete time interval when the heart rate is in a specific range.

As to claims 4 and 14, the representative electrocardiogram (IECG) is an intrinsic IECG and is recorded as a function of time/ heart rate (column 13, lines 55-57; column 14, lines 31-34; column 15, lines 5-13).

As to claims 5 and 15, the representative electrocardiograms are evoked responses from the evoked response window, collected as paces, and are functions of time/ heart rate (column 4, lines 3-6; column 7, lines 42; column 15, lines 5-13; column 15, line 52 - column 16, line 3).

As to claims 7 and 16, the display screen (214) or the printer (236) display the representative electrocardiogram (figure 5).

As to claim 10, the controller maintains representative electrocardiograms being discarded (column 14, lines 63-67).

II. Rejection of claims 8 and 17 under 35 U.S.C. 103(a) as being unpatentable over Levine et al. (U.S. Patent No. 6,748,274) in view of Palmer et al. (U.S. Patent No. 5,830,150.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levine et al. (U.S. Patent No. 6,748,274) in view of Palmer et al. (U.S. Patent No. 5,830,150).

As discussed in the paragraphs of section I. above, Levine et al. disclose the claimed invention except for the graphic display having the magnitude of the electrocardiogram displayed in shading or color.

Palmer et al. teach data display using a graphic display having the magnitude of the electrocardiogram displayed in shading or color for the purpose of highlighting changes in the condition of the patient. It would have been obvious to one having ordinary skill in the art at the time of the invention to have the magnitude of the electrocardiogram displayed in shading or color in the Levine et al. system in order for the caregivers to become more easily aware of striking events and more subtle events, the caregiver's eyes being drawn by the colors to the variable at the time of its change so appropriate care can be provided for the patient's changing condition (column 1, lines 53-55; column 3, lines 6-18; column 4, lines 1-26; column 5, lines 1-23).

(10) Response to Argument

Response to Arguments with respect to Section I. of the Grounds of Rejection - Rejection of claims 1, 4, 5, 7, 9-11 and 14-16 under 35 U.S.C. 102(e) as being anticipated by Levine et al. (U.S. Patent No. 6,748,274)

The Appellant asserts Levine et al. and Snell et al. do not describe a system component configured to compute an average electrogram from a plurality of electrograms taken over some period of time (i.e., over the discrete time intervals).

The Examiner respectfully disagrees.

Levine et al. disclose using averaging software to combine the data from the four separate data streams, four separate IEGM channels, read to be electrograms taken over some period of time (i.e., over the discrete time intervals), in to a single IEMG signal (column 15, lines 57-66). In addition, Levine et al. teach computation and displaying of real-time and recorded data (column 15, lines 5-13).

The Appellant asserts Levine et al. and Snell et al. do not describe a system component configured to compute a plurality of average electrograms for a plurality of discrete time interval, referred to as representative electrograms.

The Examiner respectfully disagrees.

Levine et al. disclose using averaging software to combine the data from the four separate data streams, four separate IEGM channels, read to be electrograms recorded at different times, a representative electrogram that represents the different discrete time intervals, into a single IEMG signal (column 15, lines 57-66). Snell et al. is cited to teach data sampling rate, sampling periods and averaging of stored event data in each

of the sampling periods, hence producing a plurality of average electrograms for a plurality of discrete time interval, referred to as representative electrograms (column 17, line 60 – column 18, line 3; column 22, lines 5-16).

The Appellant asserts Levine et al. and Snell et al. do not describe a system component configured to aggregately display a plurality of electrograms, each have been recorded (at) different period of time (i.e., the representative electrogram that represent the different discrete time intervals).

The Examiner respectfully disagrees.

Levine et al. discloses a system component, an external programmer with a display (figure 3 – 102, figure 7 – 316) configured to aggregately display a plurality of electrograms (figure 10; column 16, lines 35-37), the aggregate display read as the pulling together and graphical display of the three cardiac signals at the same time, each have been recorded (at) different period of time (i.e., the representative electrogram that represent the different discrete time intervals), the atrial IEMG signal, the ventricular IEMG signal and a surface EMG complex accepted to be recorded at different periods of time as these heart events are interrelated and occur at different times during the cardiac heart beat cycle. In addition, Levine et al. teach computation and displaying of real-time and recorded data (column 15, lines 5-13).

From a different point of view, Levine et al. disclose using averaging software to combine the data from the four separate data streams, four separate IEGM channels, read to be electrograms recorded at different times, a representative electrogram that

represents the different discrete time intervals, into a single IEMG signal (column 15, lines 57-66). Levine et al. discloses a system component, an external programmer with a LCD display (figure 3 – 102; figure 5 – 200, 214; figure 7 – 316; column 3, lines 6-24; column 10, lines 29-33), configured to aggregately display a plurality of electrograms as a single electrogram, read as the representative electrogram, that represents the different discrete time intervals. In addition, Levine et al. teach computation and displaying of real-time and recorded data (column 15, lines 5-13).

The Appellant states he finds no description of averaging electrograms recorded at different times.

The Examiner respectfully disagrees.

Levine et al. disclose using averaging software to combine the data from the four separate data streams, four separate IEGM channels, read to be electrograms recorded at different times, in to a single IEMG signal (column 15, lines 57-66). In addition, Levine et al. teach computation and displaying of real-time and recorded data (column 15, lines 5-13).

The Appellant states he finds no description of simultaneously displaying electrograms recorded at different times, whether averaged or not, in graphical form as indexed by time.

The Examiner respectfully disagrees.

Levine et al. discloses a system component, an external programmer with a display (figure 3 – 102, figure 7 – 316) configured to simultaneously display a plurality of electrograms recorded at different times (figure 10; column 16, lines 35-37), the simultanteous display read as the graphical display of the three cardiac signals at the same time, each have been recorded (at) different periods of time, the atrial IEMG signal, the ventricular IEMG signal and a surface EMG complex accepted to be recorded at different periods of time as these heart events are interrelated and occur at different times during the cardiac heart beat cycle, and these three waveforms accepted to be indexed by time at they are recorded over and are related to via a time period. In addition, Levine et al. teach computation and displaying of real-time and recorded data (column 15, lines 5-13).

From a different point of view, Levine et al. disclose using averaging software to combine the data from the four separate data streams, four separate IEGM channels, read to be electrograms recorded at different times, into a single IEMG signal (column 15, lines 57-66). Levine et al. discloses a system component, an external programmer with a LCD display (figure 3 – 102; figure 5 – 200, 214; figure 7 – 316; column 3, lines 6-24; column 10, lines 29-33), configured to simultaneously display a plurality of electrograms as a single average electrogram, the waveform accepted to be indexed by time at the waveform is recorded over and is related to via a time period. In addition, Levine et al. teach computation and displaying of real-time and recorded data (column 15, lines 5-13).

The Appellant asserts the Snell reference does not describe displaying electrograms in any form, and contains no discussion relating to the computation of any kind of average electrogram.

The Examiner respectfully disagrees.

In the rejection of record, Levine et al are cited to teach displaying electrograms and averaging electrograms.

As to displaying electrogram, Levine et al. disclose electrograms are displayed by the external programmer (column 3, lines 6-24).

As to an average electrogram, Levine et al. disclose using averaging software to combine the data from the four separate data streams, four separate IEGM channels, read to be electrograms recorded at different times, in to a single IEMG signal (column 15, lines 57-66).

Snell et al. is incorporated in the rejection of record to teach data management for a plurality of sampling periods (column 17, line 60 – column 18, line 3).

The Appellant asserts the Levine nor Snell references do not describe a system component for computing an average electrogram recorded while the heart rate is within a particular range.

The Examiner respectfully disagrees.

Levine et al. disclose a system with a programmer to permit the display of IEMG data information (column 10, lines 29-33). Levine discloses recording counter data, one type of counter data accepted to be heart rate information associated with the IEGM, for

transmission to an external programmer for display thereon (column 8, lines 12-62; column 14, lines 31-34). Levine et al. teach the electrograms can be grouped based on heart rate ranges (column 8, lines 18-27; column 14, lines 31-34). Levine et al. discloses averaging software to combine the data from the four separate data streams, four separate IEGM channels, in to a single IEMG signal (column 15, lines 57-66). Since "a particular range" is not further defined, the range could be any range, hence it is accepted Levine et al. teaches a system component for computing an average electrogram recorded while the heart rate is within a particular range.

Snell et al. teaches recording heart rate data associated with electrograms (abstract, line 16; column 6, lines 57-63). Snell et al. teaches heart rate data sampling rate, sampling periods and averaging of stored heart rate event data in each of the sampling periods, hence producing an average electrogram recorded while the heart rate is within a particular range (column 17, line 60 – column 18, line 3; column 22, lines 5-16). Since "a particular range" is not further defined, the range could be any range such as the maximum and minimum values of the data set (column 22, lines 8-16), hence it is accepted Snell et al. teaches a system component for computing an average electrogram recorded while the heart rate is within a particular range.

The Appellant asserts the Levine nor Snell references do not describe a system component for computing a plurality of representative electrograms where each such representative electrogram is an average of electrograms recorded while the heart rate is within a different heart rate range.

In response to the Appellants argument that the references fail to show a certain features of the Applicant's invention, it is noted that the feature upon which the Appellant relies (i.e., "the heart rate is within a different heart rate range") is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Since the limitation of "the heart rate is within a different heart rate range" is not a limitation found in the claims currently being processed, the Examiner will not comment further on this argument.

The Appellant asserts the Levine and Snell references do not describe a system component configured to simultaneously display a plurality of electrograms, whether averaged or not, recorded while the heat rate is within different heart rate ranges and to index the displayed electrograms by heart rate.

In response to the Appellants argument that the references fail to show a certain features of the Applicant's invention, it is noted that the feature upon which the Appellant relies (i.e., "the heart rate is within a different heart rate range") is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Since the limitation of "the heart rate is within a different heart rate range" is not a limitation found in the claims currently being processed, the Examiner will not comment further on this argument.

Response to Arguments with respect to Section II. of the Grounds of Rejection - II. Rejection of claims 8 and 17 under 35 U.S.C. 103(a) as being unpatentable over Levine et al. (U.S. Patent No. 6,748,274) in view of Palmer et al. (U.S. Patent No. 5,830,150.

The Appellant asserts Palmer et al. do not teach using different shades or colors for the different representative electrograms, because the Appellant does not believe the use of color coding for signifying different amplitude values of displayed variables is in any way similar to the use of different colors for displaying representative electrograms in order to indicate the time period or heart rate range represented by the electrograms.

The Examiner respectfully disagrees.

Since the Appellant did not cited the alleged teaching in Palmer for color coding that signifies different amplitudes values of displayed variables, the Examiner is unable to comment further. The Examiner finds Palmer et al. teach monitoring and displaying on a screen the cardiac waveform and heart rate data (figures 1, 3; column 2, lines 43-48; column 5, lines 1-7), color used in the data display to indicate the occurrence of an event for which some attention may be required, the condition being immediately apparent to the operator and the operator becoming more readily aware of the occurrence of the event or the subtle trend hence enabling the operator to provide appropriate care (column 5, lines 11-22). The Examiner deems this color coding scheme is similar and teaches the use of different colors for displaying representative electrograms in order to indicate the time period or heart rate range represented by the electrograms.

Based on the rejection of record and the discussion above, Levine et al., Snell et al. and Palmer et al. are deemed to teach the instant invention, the claimed subject matter.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Patent Examiner, Art Unit 3766
July 1, 2009

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